**Scenario Analysis for the San Pedro River: Analyzing Hydrological Consequences of a Future Environment**

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Studies of future management and policy options based on different assumptions provide a mechanism to examine possible outcomes and especially their likely benefits and consequences. The San Pedro River in Arizona and Sonora, Mexico, is an area that has undergone rapid changes in land use and cover and is subsequently facing keen environmental crises related to water resources. It is the location of a number of studies that have dealt with change analysis, watershed condition, and, most recently, alternative futures analysis. The previous work has dealt primarily with resources of habitat, visual quality, and groundwater related to urban development patterns and preferences. In the present study, previously defined future scenarios, in the form of land-use/land-cover grids, were examined relative to their impact on surface–water conditions (e.g., surface runoff and sediment yield). These hydrological outputs were estimated for the baseline year of 2000 and predicted 20 years in the future as a demonstration of how new geographic information system–based hydrologic modeling tools can be used to evaluate the spatial impacts of urban growth patterns on surface–water hydrology.

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